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09/720,541	06/27/2001	Jerome Knoploch	14XZ00074	2359
7590 07/14/2004				
Jay L Chaskin General Electric Company 3135 Easton Turnpike Fairfield, CT 06431-0001			EXAMINER CHOOBIN, BARRY	
			ART UNIT 2625	PAPER NUMBER 6

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/720,541

Applicant(s)

KNOPLIOCH ET AL

Examiner

Barry Choobin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 11-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25 is/are allowed.
- 6) ☒ Claim(s) 11-24 is/are rejected.
- 7) ☒ Claim(s) 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Specification*

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited **to a single paragraph** on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because it is more than a single paragraph. Correction is required. See MPEP § 608.01(b).
3. Application fails to describe Figs. 3-5 under "BRIEF DESCRIPTION OF THE DRAWINGS".

### *Drawings*

4. The drawings are objected to under 37 CFR 1.83(a) because they fail to identify elements 1-10 in Fig.1. Any structural detail that is essential for a proper understanding

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of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim 13 recites the limitation "the upper limit Bct" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 14 recites the limitation "the upper limit Bct" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 15 recites the limitation "the lower limit Act" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 16 recites the limitation "the lower limit Act" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 17 recites the limitation "the lower limit Act" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 18 recites the limitation "the lower limit Act" in line 1. There is insufficient antecedent basis for this limitation in the claim.

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Claim 20 recites the limitation "the lower limit Amr" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 22 recites the limitation "the lower limit Act" in line 2, "the upper limit Bct" in line 2, "the lower limit Amr" in line 3. There is insufficient antecedent basis for these limitations in the claim.

Claim 23 recites the limitation "the gray level VMR" in line 2 and 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 23 recites the limitation "the gray level VOUT" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 24 recites the limitation "the gray levels" in line 5, "the coordinates" in line 7. There are insufficient antecedent basis for these limitations in the claim.

Claim 19 recites the limitation "one selects" in line 1, the language is unclear as to what or who claim is referring to.

Accordingly, claims 13-20, 22-24 are rejected under the second paragraph of 35 U.S.C. 112.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11, 12, 19, 21, 22 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Hibbard et al (US 6,266,453).

As to claims 11 and 24, Hibbard et al disclose a method of fusion of first and second digital radiographic images of an object comprising the steps of: scanning the object to provide first digital radiographic image (column 7, lines 24-25); provided the second digital radiographic image by MRI (column 7, lines 25-26);

Selecting in the scanner image a CT interval of gray wherein each pixel of the scanner having a gray level lying within the CT interval is replaced by a pixel obtained by digital processing if the pixel of the same coordinates as the MRI image, the final image corresponding to the scanner image in which the pixels of gray levels lying within the CT interval are thus modified (column 8, lines 22-56).

As to claim 12, Hibbard et al disclose means of at least one rotation and/or translation operation, so that a pixel of the scanner image of coordinates (x, y) and a pixel of the MRI image of the same coordinates (x, y) represent the same portion of the object (Figs.7-8).

As to claim 19, in view of rejection above concerning uncleanness of the claim language, the Examiner's best interpretation of the claim corresponds to column 5, line 62 – column 6, line 8 of Hibbard.

As to claims 21 and 22, Hibbard et al disclose a linear interpolation (column 16, lines 45-51).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hibbard et al.

Hibbard et al disclose limitations includes in claims 13-18 (see above). But Hibbard et al do not expressly disclose a Hounsfield scale.

But Hounsfield scale is described in Background of the invention as a standard gray level format (see page 2, lines 6-8). Furthermore, the Hounsfield scale is well known. This scale, denoted as the "Hounsfield scale", is very well suited to representing anatomical tissues. (For Applicant's convenience the Examiner provides supporting prior arts, for example US 20040047804).

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Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use "Hounsfield scale" with Hibbard et al in order to enhance radiation therapy.

***Allowable Subject Matter***

Prior art fails to teach or fairly suggest a method for combining radiographic images comprising: fixing in the CT image gray scale levels corresponding to upper and lower limits of the interval; fixing in the MR image gray levels corresponding to upper and lower limits of the MR interval, and combining the respective lower and upper limits in combination with other elements of claim 25.

Claim 25 is allowed.

Claim 23 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 2004/0047804 to Wolf et al.

US 6748043 to Dobbs.

US 2004/0064038 to Bruder et al.

US 6268870 to Kato.

US 2002/0101436 to Shastri et al.



US 5490516 to Hutson.

US 5823778 to Schmitt et al.

US 2003/0023266 to Borillo et al.

US 2004/0011137 to Hnat et al.

US 6101239 to Kawasaki et al.

US 5954650 to Saito et al.

**CONTACT INFORMATION**

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barry Choobin whose telephone number is 703-306-5787. The examiner can normally be reached on M-F 7:30 AM to 18:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 703-308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.



Barry Choobin

June 29, 2004

**BHAVESH M. MEHTA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600**